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James B. Popp

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EXAMINER

LEE, BENJAMIN C

ART UNIT

PAPER NUMBER

2632

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/837,228

Applicant(s)

POPP ET AL.

Examiner

Benjamin C. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 and 41-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 41-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

***Response to Amendment***

***Claim Status***

1. Claims 1-27 and 41-58 are pending.

***Claim Rejections - 35 USC § 103***

2. Claims 1-8, 18-25, 27, 41-49 and 52-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabowski et al. (US pat. #3,713,491) in view of Wootton (US pat. #3,848,231).

1) In considering claim 1:

Grabowski et al. teaches a system for detecting and suppressing a fire condition in a storage unit for storing freight in a storage area (e.g. objects in railroad cars according to col. 1, lines 14-27), comprising: a means for detection of the fire condition (32); a fire suppression device (29) configured to discharge a fire suppressant material into the storage unit upon detection of the fire condition, and also an embodiment having a remote alarm (14) using wired-connection of multiple devices (Fig. 1).

Wootton teaches the desirability to provide a remote indication of a detected fire condition for situational awareness by personnel for appropriate action, using a transmitter (16) associated with the fire sensor at the detection site (Fig. 1) and configured to transmit a first signal upon detection of the fire condition, at least one receiver (Fig. 4) configured to detect the first signal and configured to provide a second signal indicating detection of the fire condition (235).

In view of the teachings by Grabowski et al. and Wootton, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a remote indicating

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feature using the transmitter, receiver and indicator such as taught by Wootton in a fire detecting and suppressing system such as taught by Grabowski that shows which location has detected fire so that appropriate response, such as personal inspection or summoning additional aid from the fire department, can be provided by personnel in an improved manner due to knowledge of the location of the fire.

2) In considering claim 2, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 1, including:

a) the claimed plurality of transmitters for associated plurality of storage units (individual fire sensors are associated with individual transmitters at each location according to Fig. 1 of Wootton);

except:

b) the claimed use of plurality of receivers each corresponding to an associated storage unit.

Grabowski et al. and Wootton teaches using a receiving central able to decode and distinguish the transmitted signals from the plurality of transmitters/sensors for indication (Fig.

4). However, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a plurality of repeating receivers associated with the storage units can be used in a system such as taught by Grabowski et al. and Wootton for situations where the battery powered units (37 in Fig. 2 of Grabowski et al.) require a repeater in order to provide a sufficient signal for reliable reception by the remote receiving central while maintaining reasonable battery life and conforming to FCC regulations on transmission power level limits.

3) In considering claim 3, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 2, wherein:

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that each of the storage units should be located at a predetermined position relative to the individual receiver associated with the storage unit so that the receiver can effectively receive the transmitted signal situated in the individual storage unit while maintaining the battery power and transmission power level requirements in a system such as taught by Grabowski et al. and Wootton.

4) In considering claim 4, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 3, including:

--the claimed said second signal from a receiver is provided to a control panel that in response to the second signal identifies the storage unit experiencing the fire condition (Fig. 4 and col. 17, ones 33-38 of Wootton).

5) In considering claims 5-6, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 2, except:

--specifying the claimed at least some of the storage units are containers or pallets including blankets for storing the freight.

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that since freight storage units including containers or pallets including blankets for storing freight are also subjected to fire hazards, a system such as taught by Grabowski et al. and Wootton is applicable for protecting such storage units against fire hazards just as well.

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6) In considering claims 7, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 1, including:

--the claimed pressurized vessel within the storage unit and containing fire suppressant material activated and discharged by a fire detection component into the storage unit upon fire detection is met by Fig. 2 of Grabowski et al.

7) In considering claim 8, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 1, except:

--the claimed first signal is infrared.

While Grabowski et al. and Wootton uses a radio link, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that other wireless links, including an infrared link, can be used in a system such as taught by Grabowski et al. and Wootton without unexpected results, whereby infrared can specifically be chosen if radio interference may be a problem in the application environment.

8) In considering claims 18-19, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in the consideration of claim 1, wherein:

Since Grabowski et al. teaches the protection of aircraft cargo, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include the remote alarm and control panel in the cockpit and is applicable to aircraft cargo in the configuration of a plurality of storage units in the storage area for a system such as taught by Grabowski et al. and Wootton.

9) In considering claims 20-22, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 19, wherein:

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It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that for relatively small storage units such as containers as an application environment of the system taught by Grabowski et al. and Wootton, in order that the storage volume is not negatively impacted/reduced by being occupied by the fire suppressant and release components, they can be configured in a retractable configuration and located exterior of the container such as outside the base of the container with a hole so that the application mechanism and valve aligned with the hole will discharge fire suppressant material into the container through the hole responsive to fire detection, and to configure the valve in a retracted position prior to fire detection, but then engage the container base upon the fire detection using a piston.

10) In considering claim 23, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 18, wherein:

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the cargo storage units can include a pallet, and that since fire hazard is a concern for the storage unit in a system such as taught by Grabowski et al. and Wootton, by virtue of the need to implement the fire detection and suppressant system, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a fire resistant blanket for the storage unit housing/walls including its base to improve fire survivability.

11) In considering claims 24-25, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 18, plus Fig. 4 of Wootton in which the control unit determines origin of the first signal and transmits a third signal to a control panel (display 235) indicating origin of the first signal.

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12) In considering claim 27, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 18, plus the consideration of claim 8.

13) In considering claims 41-42, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in the consideration of claims 1-2 & 8, wherein:

Grabowski et al. discloses the various claimed fire suppressant system features in Fig. 2. Furthermore, since Grabowski et al. teaches the protection of aircraft cargo, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include the remote alarm and control panel in the cockpit and is applicable to aircraft cargo in the configuration of a plurality of storage containers each having a base and a cover with an opening for allowing the signal transmission for reception by a corresponding overhead infrared receiver in the storage area such that for a system such as taught by Grabowski et al. and Wootton.

14) In considering claim 43, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in the consideration of claim 8.

15) In considering claim 44, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 43, plus the consideration of claim 2.

16) In considering claim 45, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 44, plus the consideration of claims 41-42.

17) In considering claim 46, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 45, plus Fig. 4 of Wootton.

18) In considering claim 47, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 44, plus the consideration of claim 41.



19) In considering claim 48, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 44, plus the consideration of claim 6.

20) In considering claim 49, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 43, plus Fig. 2 of Grabowski et al.

21) In considering claim 52, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in the consideration of claim 42.

22) In considering claim 53, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 52, plus the suppressant system shown in Fig. 2 of Grabowski et al.

23) In considering claim 54, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 53, plus the consideration of claim 20.

24) In considering claims 55-56, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 52, plus the consideration of claims 23 and 24, respectively.

25) In considering claim 57, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 56, plus the consideration of claim 25.

3. Claims 9 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabowski et al. in view of Wootton and Eguchi (US pat. #3,909,814).

1) In considering claim 9, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 1, while:

Eguchi teaches a specific bimetallic switch configured to close upon detection of the fire condition as the fire detector (Figs. 1-3). In view of the teachings by Grabowski et al., Wootton and Eguchi, it would have been obvious to one of ordinary skill in the art at the time of the

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claimed invention that a known bimetallic switch type fire sensor such as taught by Eguchi can be used for specifically implementing the fire detector in a system such as taught by Grabowski et al. and Wootton for its simple and economic characteristic.

2) In considering claim 50, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 43, plus the consideration of claim 9 in view of Eguchi.

4. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabowski et al. in view of Wootton, Eguchi and Fierbaugh (US pat. #4,987,958).

1) In considering claims 10-11, Grabowski et al., Wootton and Eguchi made obvious all of the claimed subject matter as in claim 9, while:

Fierbaugh teaches a known mounting of a bimetallic switch sensor in a container environment in which the switch extends through and contacts a surface of the container (21 in Figs. 1 & 3). It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that when applying the fire sensing bimetallic switch of a system such as taught by Grabowski et al., Wootton and Eguchi to the storage unit environment, that the switch needs to be physically mounted somewhere, and the sensor has to be operably coupled to the environment, such as by extending through and in contact with a surface of the storage unit, especially if the storage unit is relatively small. Furthermore, Fierbaugh teaches such known mounting as a known way for mounting the bimetallic switch sensor to a container environment.

2) In considering claims 12-13, Grabowski et al., Wootton, Eguchi and Fierbaugh made obvious all of the claimed subject matter as in claim 11, wherein:

Since fire hazard is a concern for the storage unit in a system such as taught by Grabowski et al, Wootton, Eguchi and Fierbaugh by virtue of the need to implement the fire

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detection and suppressant system, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to include a cover and/or a fire resistant blanket for the storage unit housing/wall so that said surface is the cover or blanket.

5. Claims 14-17 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabowski et al. in view of Wootton and Sears (US pat. #6,032,745).

1) In considering claim 14, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 2, while:

Sears teaches a popup device disposed between one of the application environment and the source of pressurized fire suppressant material to apply the material upon a fire condition (24 and col. 4, lines 22-38). While Grabowski et al. uses a valve activated by an electrically energized explosive squib (col. 3, lines 54-59), it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that a known popup device and valve mechanism such as taught by Sears can also be used as an alternative for such a purpose, the choice depending on factors such as availability of parts at the time of implementation.

2) In considering claim 15, Grabowski et al., Wootton and Sears made obvious all of the claimed subject matter as in claim 14, wherein:

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention that for relatively small storage units such as containers as an application environment of the system taught by Grabowski et al., Wootton and Sears, in order that the storage volume is not negatively impacted/reduced by being occupied by the fire suppressant and release components, they can be located exterior of the container such as outside the base of the

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container with a hole so that the popup device and valve aligned with the hole will discharge fire suppressant material into the container through the hole responsive to fire detection.

3) In considering claim 16, Grabowski et al., Wootton and Sears made obvious all of the claimed subject matter as in claim 14, wherein:

Grabowski et al. teaches linking multiple devices through a control scheme so that neighboring units can activate the suppressant material (Fig. 1) to ensure effectiveness of suppressing the fire. With such embodiment included in a system such as taught Grabowski et al., Wootton and Sears, the system would include a control unit for detecting the second signal and transmit an activation signal to the popup device upon detecting the second signal.

4) In considering claim 17, Grabowski et al., Wootton and Sears made obvious all of the claimed subject matter as in claim 16, including:

--the claimed control panel having a warning indicator wherein the control unit transmits an alert signal to the warning indicator on the panel (14 in Fig. 1 and 35 in Fig. 2 of Grabowski et al.; 235 in Fig. 4 of Wootton).

5) In considering claim 51, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 44, plus the consideration of claim 14 in view of Sears.

6. Claims 26 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grabowski et al. in view of Wootton and Granek (US pat. #4,058,167).

1) In considering claim 26, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 25, while:

Granek et al. teaches locating the fire suppressant system separate from the fire detector (Figs. 1 & 5) as an alternative to co-locating them as in the Grabowski et al. system. It would

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have been obvious to one of ordinary skill in the art at the time of the claimed invention that the fire suppressant system and the fire detector such as taught by Granek et al. can be used as an alternative in a system such as taught by Grabowski et al. and Wootton so as a design preference, whereby such alternative would require the remote control unit to transmit a fourth signal to the fire suppression device to discharge suppressant material into the storage unit.

2) In considering claim 58, Grabowski et al. and Wootton made obvious all of the claimed subject matter as in claim 57, plus the consideration of claim 26 in view of Granek.

***Response to Arguments***

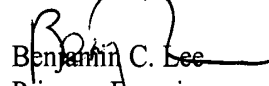
7. Applicant's arguments with respect to claims 1-27 and 41-58 have been considered but are moot in view of the new ground(s) of rejection. See above rejection for detail.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin C. Lee whose telephone number is (703) 306-4223. The examiner can normally be reached on Mon -Fri 11:00Am-7:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on (703) 308-6730. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.

  
Benjamin C. Lee  
Primary Examiner  
Art Unit 2632

B.L.  
1/26/04